



Vertiv™ Liebert® ITA2 Battery Cabinet

Installer/User Guide

8 - 10kVA, 60Hz, 208/220V

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

TABLE OF CONTENTS

1 Important Safety Information	1
2 Product Description	3
2.1 Rear Panel Components	4
3 Installation	5
3.1 Pre-Installation Preparation	5
3.1.1 Environment of Installation Area	5
3.1.2 Installation Clearances	6
3.1.3 Installation Tools	6
3.2 Equipment Handling and Unpacking	6
3.3 Attaching and Removing the Bezel	6
3.4 Tower Installation	8
3.5 Rack Installation	9
3.6 Connecting a Single Battery Cabinet System	11
3.6.1 Connecting the Cables	11
3.7 Connecting Additional Battery Cabinet Systems	17
4 Specifications	21

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1 Important Safety Information

IMPORTANT! This manual contains important safety instructions that must be followed during the installation and maintenance of the UPS and batteries. Read this manual thoroughly and the safety and regulatory information, available at <https://www.vertiv.com/ComplianceRegulatoryInfo>, before attempting to install, connect to supply, or operate this UPS and equipment.

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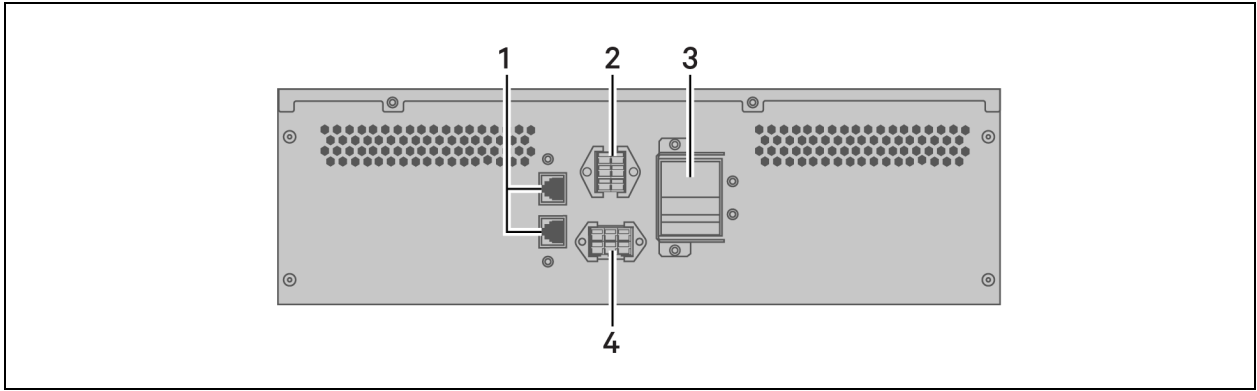
2 Product Description

The Vertiv™ Liebert® ITA2 Battery Cabinet provides DC input power the Vertiv™ Liebert® ITA2 UPS. The battery cabinet may be installed in a rack or tower configuration, and a maximum of five battery strings can be connected to the UPS.

When introduced, the battery cabinet was 3U height (U = rack units). Later, to reduce the rack space required by a Liebert® ITA2 UPS system, the battery cabinet was replaced by a 2U cabinet.

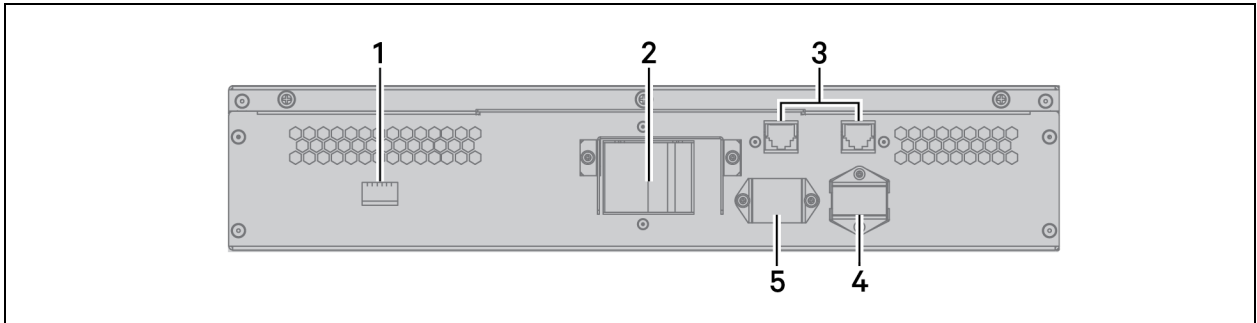
2.1 Rear Panel Components

Figure 2.1 3U Battery Cabinet Rear Panel



Item	Description
1	RJ-45 communication port (x2)
2	Battery Port A
3	Battery output breaker
4	Battery Port B

Figure 2.2 2U Battery Cabinet Rear Panel



Item	Description
1	DIP switch
2	Battery output breaker
3	RJ-45 communication port (x2)
4	Battery Port B
5	Battery Port A

3 Installation

Installation must be performed by properly trained and qualified personnel. Do not start the UPS until after the installation is finished and the system is commissioned by an authorized engineer.



WARNING! Risk of electrical shock. Can cause property damage, injury, and death. The unit has several circuits that are energized with high DC and AC voltages. Check for voltage with both AC and DC voltmeters before making contact and before working within the UPS. Only properly trained and qualified personnel wearing appropriate, OSHA-approved personal protective equipment (PPE) should prepare for installation, install and maintain the equipment. When performing maintenance with any part of the equipment under power, service personnel and test equipment must stand on rubber mats.



WARNING! Risk of electrical shock. Can cause equipment damage, injury and death. Before beginning installation, verify that all external overcurrent protection devices are open (Off), and that they are locked out and tagged appropriately to prevent activation during the installation. After the power cables are connected, the terminal block's protective cover must be reinstalled to remove the electric shock hazard.



WARNING! Risk of heavy unit falling. Improper handling can cause equipment damage, injury, and death. Exercise extreme care when handling unit cabinets and rack-mounted units to avoid equipment damage or injury to personnel. The battery cabinets weigh approximately 115 lb. (52.2kg).

3.1 Pre-Installation Preparation

Before beginning the installation, consider the environmental requirements, service clearances and external protective devices for installing the equipment.

3.1.1 Environment of Installation Area

Install the Vertiv™ Liebert® ITA2 UPS battery cabinet in an environment with the ambient temperature within the specifications listed in **Table 3.1** below .

The environment must:

- Be clean and well-ventilated.
- Have no direct sunlight on the system.
- Be free from water, heat source and flammable and explosive substances.
- Be free from dust, volatile gases and corrosive materials.

Table 3.1 Battery Cabinet Environmental Conditions

Environmental Conditions	Range
Operating Temperature, °F (°C)	32-122 (0 ~ 50)
Storage Temperature, °F (°C)	-13 ~ 122) (-25 ~ 50)
Relative Humidity	5%RH ~ 95%RH (non-condensing)
Altitude, ft. (m)	9800 (3000), no derating

3.1.2 Installation Clearances

Maintain at least 4 in. (102mm) clearance at the front, rear and side of the battery cabinet. Do not obstruct the air inlets on the front panel and rear panels. Blocking the air inlets reduces ventilation and heat dissipation, shortening the service life of the unit.

3.1.3 Installation Tools

IMPORTANT! All tools used to install and maintain the Vertiv™ Liebert® ITA2 Battery Cabinet and equipment must be insulated.

The following tools are required to properly install your battery cabinet:

- Phillips-head screwdriver to install the rack rails
- Flat-blade screwdriver to install the battery cable

3.2 Equipment Handling and Unpacking



WARNING! Risk of heavy unit falling. Improper handling can cause equipment damage, injury, and death. Exercise extreme care when handling unit cabinets and rack-mounted units to avoid equipment damage or injury to personnel. The battery cabinets weigh approximately 115 lb. (52.2kg).

During unpacking:

- Inspect the UPS for damage. If you find any problem, file a damage claim with the carrier immediately and send a copy to Vertiv™.
- Check the accessories and model numbers against the delivery list. If you find any problem, notify your local Vertiv representative immediately.

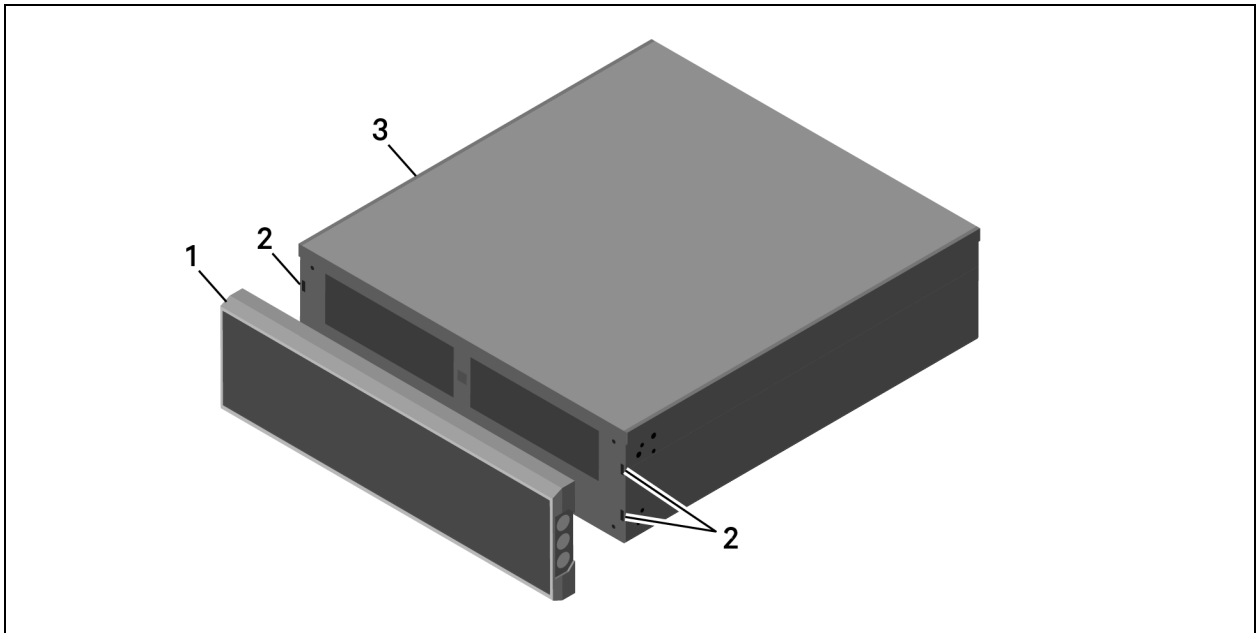
3.3 Attaching and Removing the Bezel

To attach the bezel:

1. Obtain the bezel from the accessories package, and align the bezel with the front panel of the battery cabinet, see **Figure 3.1** on the facing page .
2. Press the fittings on both sides of the bezel into the rectangular holes on the battery cabinet.

To remove the bezel, grasp the sides and pull it away from the cabinet.

Figure 3.1 Attaching the Bezel

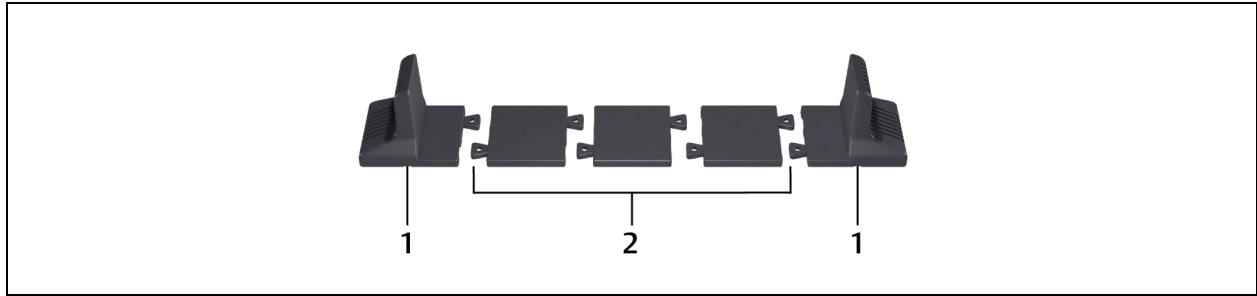


Item	Description
1	Bezel
2	Rectangular hole
3	Battery cabinet

3.4 Tower Installation

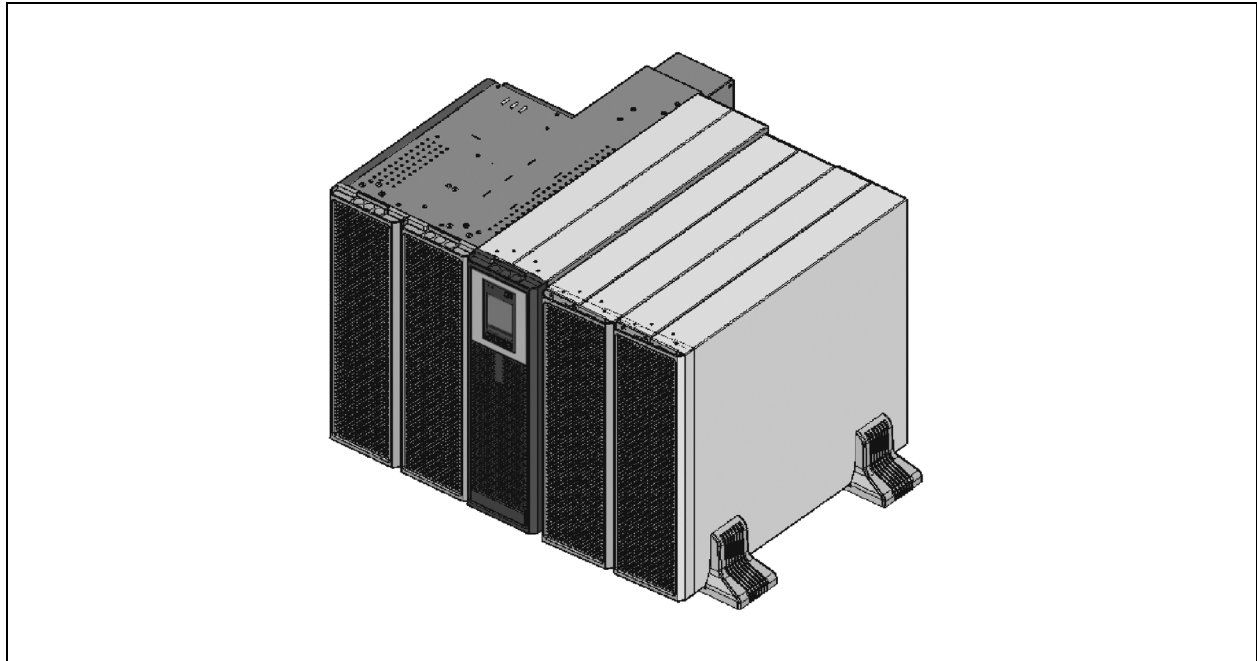
1. Take the support bases out of the accessories box.
2. Connect the spacers and the support bases as shown in **Figure 3.2** below . Each tower assembly requires two support base/spacer assemblies, one in the front and one in the rear.
3. Place the Vertiv™ Liebert® ITA2 UPS, battery cabinets and the Vertiv™ Liebert® ITA2 Battery Cabinet on the two support base assemblies.

Figure 3.2 Support Bases



Item	Description
1	Support bases
2	Spacers with connectors

Figure 3.3 Tower-Mounted Liebert® ITA2 UPS System with Battery Cabinets and Liebert® ITA2 Battery Cabinet



3.5 Rack Installation

NOTICE

Risk of improper transport. Can cause damage to the UPS, MBC or battery cabinets.

Never attempt to lift or move the UPS, MBC or battery cabinets with the rack brackets. The brackets and screws are not meant to lift the units.

NOTICE

Risk of improper installation. Can make rack top-heavy and cause a tipping hazard.

The battery cabinets are heavier than the UPS. Vertiv™ recommends installing the battery cabinets as near the bottom of the rack as possible to maintain a low center of gravity. Install the UPS above the battery cabinets.

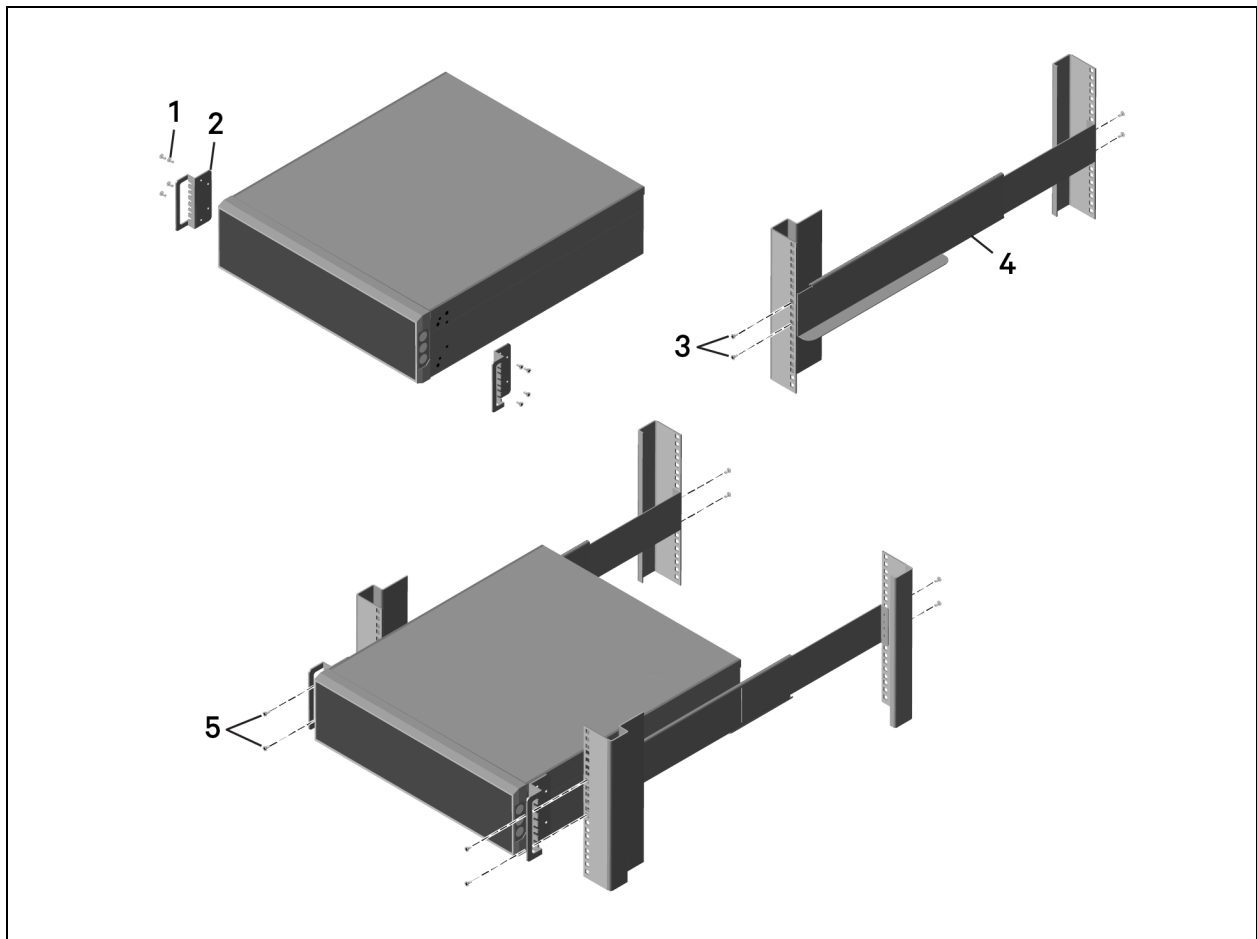
Install each unit on its own set of rack-mount guide rails. The rail kit will support the weight of a single UPS, MBC or battery cabinet.

To mount the unit in the rack:

NOTE: Install the battery cabinets from bottom to top to minimize tipping hazard.

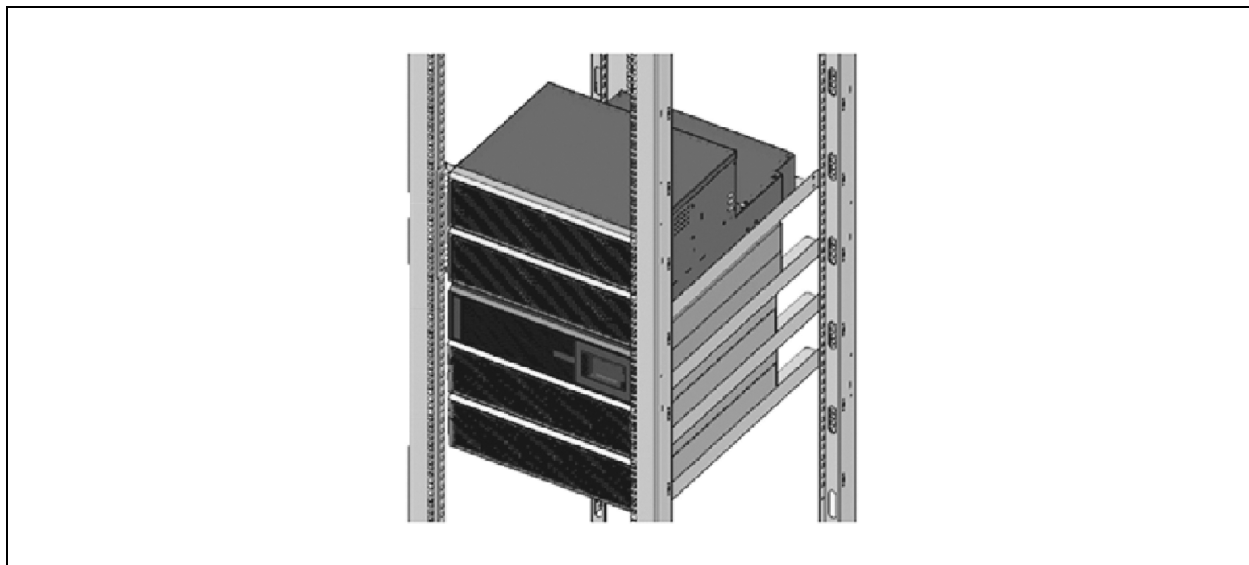
1. Referring to **Figure 3.4** on the next page, use four of the M4×10 screws on each bracket, and attach a bracket to each front corner.
2. Referring to **Figure 3.4** on the next page, mount the right and left guide rails for each battery cabinet:
 - Adjust the length of each guide rail to the dimensions of the rack.
 - Align the install holes on the ends of the rail to the square holes in the rack, and use four of the provided screws, two on each end to attach the rail to the rack.
3. Place the unit on the guide rails and push it completely into the rack along the guide rails.
4. Use M5X16 screws to secure the unit brackets to the rack, see **Figure 3.4** on the next page.

Figure 3.4 Guide Rail and Rack Bracket Installation



Item	Description
1	Bracket screw, four per bracket
2	Bracket, two
3	Rail screw, four per rail
4	Guide rail, one per side
5	Rack-mount screw, four per bracket

Figure 3.5 Rack-Mounted Vertiv™ Liebert® ITA2 UPS System with Battery Cabinets and Vertiv™ Liebert® ITA2 Battery Cabinet



3.6 Connecting a Single Battery Cabinet System

Do not reverse the polarity of the battery cables.

3.6.1 Connecting the Cables



WARNING! Risk of electrical shock. Can cause property damage, injury and death. The unit has several circuits that are energized with high DC and AC voltages. Check for voltage with both AC and DC voltmeters before making contact and before working within the UPS. Only properly trained and qualified personnel wearing appropriate, OSHA-approved personal protective equipment (PPE) should prepare for installation, install and maintain the equipment. When performing maintenance with any part of the equipment under power, service personnel and test equipment must stand on rubber mats.



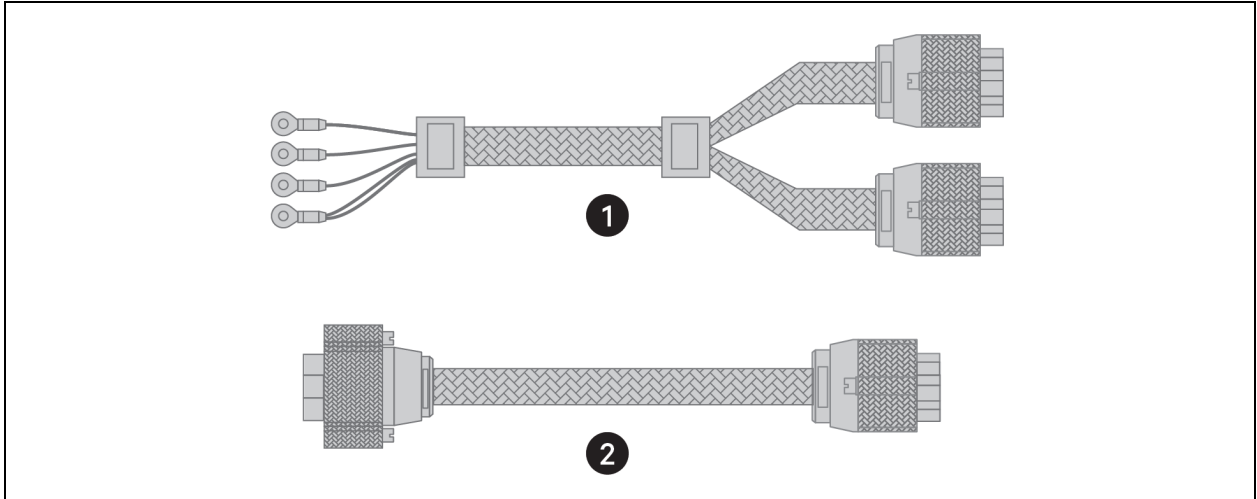
WARNING! Risk of electrical shock. Can cause equipment damage, injury and death. Before beginning installation, verify that all external overcurrent protection devices are open (Off), and that they are locked out and tagged appropriately to prevent activation during the installation. After the power cables are connected, the terminal block's protective cover must be reinstalled to remove the electric shock hazard.



WARNING! Risk of heavy unit falling. Improper handling can cause equipment damage, injury, and death. Exercise extreme care when handling unit cabinets and rack-mounted units to avoid equipment damage or injury to personnel. The battery cabinets weigh approximately 115 lb. (52.2kg).

The factory-provided, UPS-to-battery power cable, see [Figure 3.6](#) on the next page, connects to Connector A on both battery cabinets in a single/first battery string. The battery-to-battery power cable connects additional battery strings/cabinets, see [Connecting Additional Battery Cabinet Systems](#) on page 17.

Figure 3.6 Power Cables

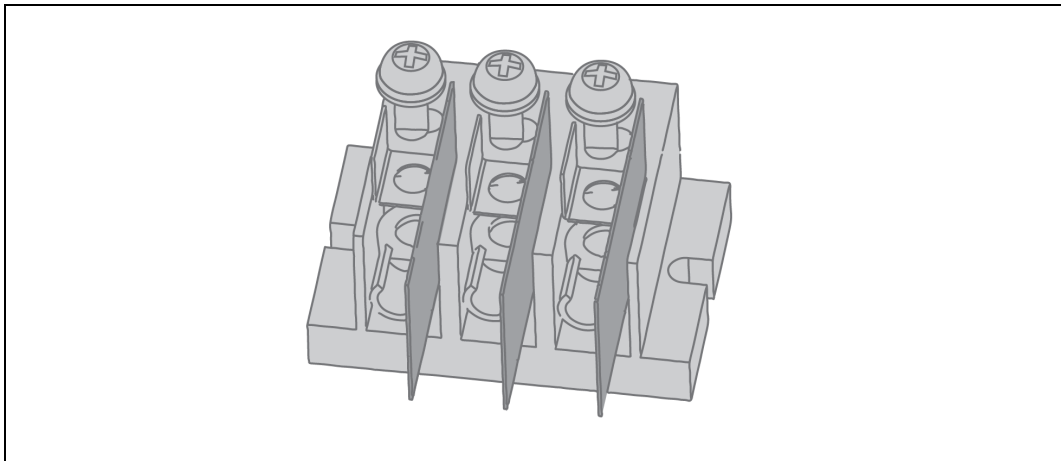


Item	Description
1	UPS-to-battery cable (for hard-wired configurations)
2	Battery-to-battery cable (also UPS-to-battery for plug-and-play configurations)

To connect the UPS with terminal block connections to the battery cabinet system:

1. Make sure the battery breaker on the rear of the cabinet is open (Off).
2. Connect the ring terminals of the UPS-to-battery cable to the rear of the UPS.
3. Install the insulating plates on the battery terminals, see **Figure 3.7** below :
 - a. Connect the ground wire (PE) to the ground screw on the rear of the UPS.
 - b. Place the battery-cable ring lug on the terminal block, add the insulating plate, then insert the screw and tighten to 30 lb-in. torque.
 - c. Repeat Step b for each terminal block connection: battery +, battery neutral, and battery –.

Figure 3.7 Battery Insulating Plates

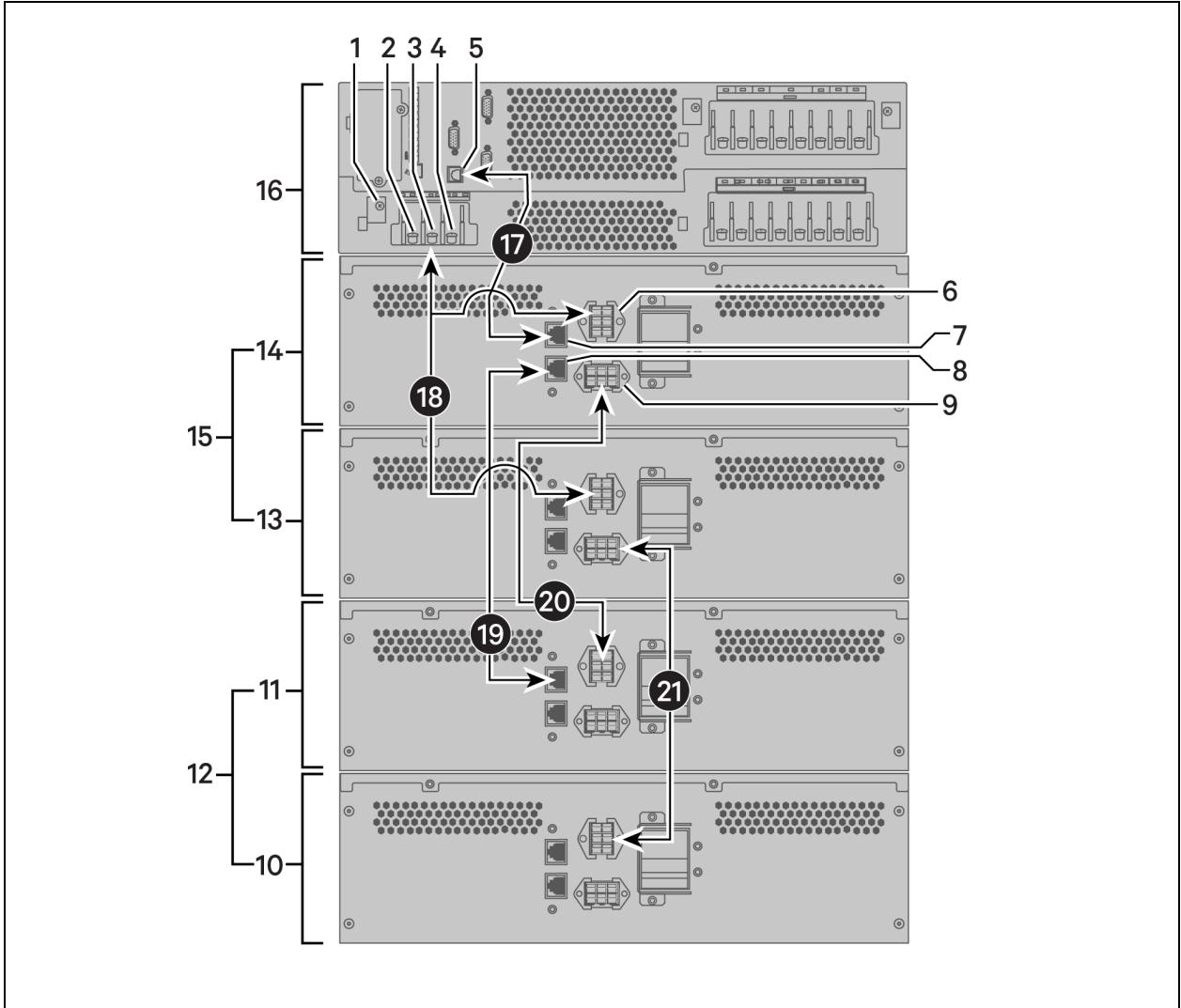


4. Depending on the type of battery cabinet, see **Figure 3.8** on the next page for 3U, or see **Figure 3.9** on page 16, for 2U, and connect the other ends to Connector A on each of the battery cabinets in the string.
5. Connect the RJ-45 communication cable to the communication port on the UPS and the other end to Communication Port 1 on the first battery cabinet.
 - If connecting a 2U battery string, connect a cable between Comm Port 2 on the first cabinet, and Comm Port 1 on the second.
6. For a single battery string, close the battery output breaker(s).
 - or –
 - If installing additional battery strings (two battery cabinets each), proceed to [Connecting Additional Battery Cabinet Systems](#) on page 17.

To connect the UPS with plug-n-play connectors to the battery cabinet system:

1. Make sure the battery breaker on the rear of the cabinet is open (Off).
2. Using a cable provided with the battery cabinet, refer to **Figure 3.9** on page 16, and:
 - Connect the end labeled "Port B" to one of the connectors on the rear of the UPS and tighten the securing screws.
 - Connect the end labeled "Port A" to Connector A on the battery cabinet.
3. Repeat Step 2, for the second battery cabinet.
4. Using a communication cable with RJ-45 connectors, refer to **Figure 3.9** on page 16, and:
 - Connect one end to the multi-function port on the rear of the UPS.
 - Connect the other end to one of the RJ-45 communication ports on the first battery cabinet.
 - Connect another cable from the remaining RJ-45 communication port on the first battery cabinet to one of the ports on the second battery cabinet.
5. For a single battery string, close the battery output breaker(s).
 - or –
 - If you are installing additional battery strings (two battery cabinets each), proceed to [Connecting Additional Battery Cabinet Systems](#) on page 17.

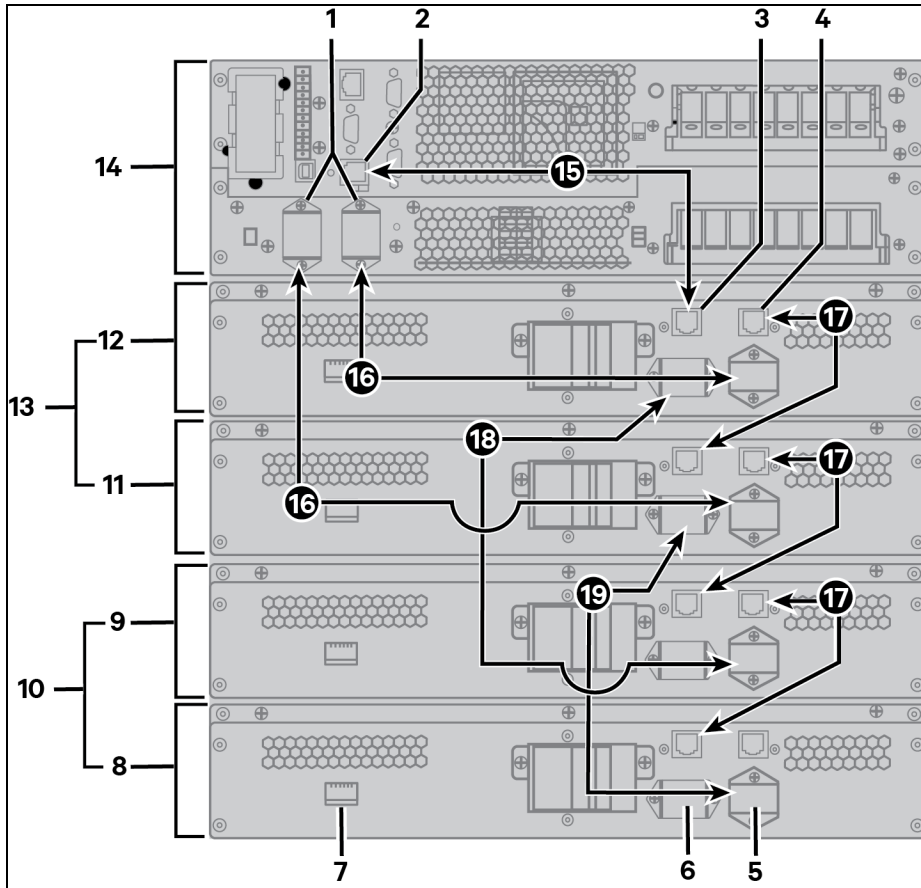
Figure 3.8 Cabling the UPS and Two 3U battery Strings in Parallel



Item	Description
1	Ground screw (PE)
2	BAT - (negative) connector
3	BAT N (neutral) connector
4	BAT + (positive) connector
5	Communication port connector (RJ-45)
6	Connector A
7	Communication port Connector 1
8	Communication port Connector 2
9	Connector B
10	Battery Cabinet 4

Item	Description
11	Battery Cabinet 3
12	Battery String 2
13	Battery Cabinet 2
14	Battery Cabinet 1
15	Battery String 1
16	UPS
17	Communication cable, UPS to Comm Port 1 on Battery Cabinet 1
18	UPS-to-battery power cable, to Connector A on Battery Cabinets 1 and 2
19	Communication cable, Comm Port 2 to Comm Port 1 on Battery Cabinet 3
20	Battery-to-battery power cable, Battery Cabinet 1 Connector B to Connector A on Battery Cabinet 3
21	Battery-to-battery power cable, Battery Cabinet 2 Connector B to Connector A on Battery Cabinet 4

Figure 3.9 Cabling the UPS and Two 2U Battery Strings in Parallel



Item	Description
1	Battery cable connectors
2	Multi-function connector (RJ-45)
3	Communication port connector (RJ-45)
4	Communication port connector (RJ-45)
5	Connector B
6	Connector A
7	DIP switch
8	Battery Cabinet 4
9	Battery Cabinet 3
10	Battery String 2
11	Battery Cabinet 2
12	Battery Cabinet 1
13	Battery String 1
14	UPS

Item	Description
15	Communication cable, UPS to communication port on Battery Cabinet 1
16	Battery cable to Connector A on Battery Cabinet 1 and 2
17	Communication cable, Battery Cabinet 1 to Battery Cabinet 2; Battery Cabinet 2 to Battery Cabinet 3; Battery Cabinet 3 to Battery Cabinet 4
18	Battery Cable from Connector B on Battery Cabinet 1 to Connector A on Battery Cabinet 3
19	Battery Cable from Connector B on Battery Cabinet 2 to Connector A on Battery Cabinet 4
20	Communication cable between communication ports on each battery cabinet.
21	Battery cable from Connector B on Battery Cabinet 1 to Connector A on Battery Cabinet 3
22	Battery cable from Connector B on Battery Cabinet 2 to Connector A on Battery Cabinet 4

3.7 Connecting Additional Battery Cabinet Systems



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WARNING! Risk of electrical shock. Can cause equipment damage, injury and death. Before beginning installation, verify that all external overcurrent protection devices are open (Off), and that they are locked out and tagged appropriately to prevent activation during the installation. After the power cables are connected, the terminal block's protective cover must be reinstalled to remove the electric shock hazard.



WARNING! Risk of heavy unit falling. Improper handling can cause equipment damage, injury, and death. Exercise extreme care when handling unit cabinets and rack-mounted units to avoid equipment damage or injury to personnel. The battery cabinets weigh approximately 115 lb. (52.2kg).

The factory-provided, battery-to-battery power cables, see **Figure 3.6** on page 12, connect the battery strings in parallel to extend the backup time of the UPS. For 2U battery cabinets, you must adjust the DIP switch on the rear panel for each cabinet in the string.

To connect power cables:

1. Verify that the battery breakers are in the open (Off) position before connecting or disconnecting battery cables.
2. Depending on the type of battery cabinet, see **Figure 3.8** on page 14 , for 3U or **Figure 3.9** on page 16 , for 2U, and:
 - Connect one end of a battery-to-battery cable to Connector B on the first cabinet in the first string (Battery Cabinet 1), and the other end to Connector A on the first cabinet in the additional string (Battery Cabinet 3).
 - Connect one end of a battery-to-battery cable to Connector B on the second cabinet in the first string (Battery Cabinet 2), and the other end to Connector A on the second cabinet in the additional string (Battery Cabinet 4).
3. Verify that the connector colors align and press the cable in firmly to fully seat the connectors.
4. Tighten the captive screws on the extension cable to prevent the extension cable from loosening.
5. Connect an RJ-45 communication cable:
 - On 3U strings, to Communication Port 2 on the first cabinet in the first string (Battery Cabinet 1), and the other end to Communication Port 1 on the first cabinet in the additional string (Battery Cabinet 3).
 - On 2U strings, connect a communication cable to Communication Port 2 and Communication Port 1 between each battery cabinet.

NOTE: If using both 2U and 3U battery cabinets in a system, you must manually configure the number of connected battery strings via the display. The number of strings is not auto-detected.

NOTE: In a mixed-cabinet system, the communication cables allow temperature measurements. If your system is running on an older version of firmware, you may need to set the multifunction port to "temperature" to enable the measurements.

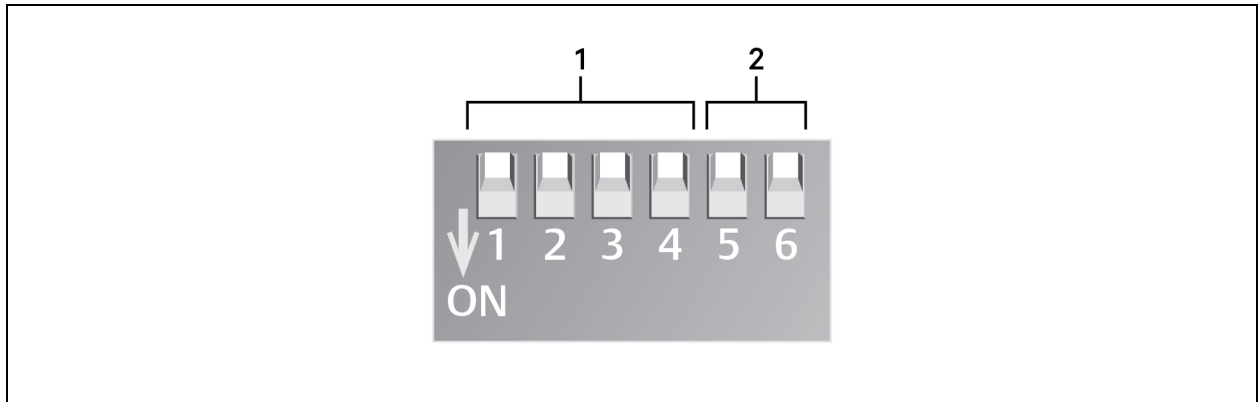
6. **On 3U strings**, close the battery output breaker(s).
 - or –
 - On 2U strings**, refer to **Table 3.2** on the facing page , and **Figure 3.10** on the facing page , and set the DIP switch on both cabinets in each additional string before closing the battery output breaker(s).

NOTE: The settings for String 1 are the factory-default settings.

Table 3.2 DIP Switch Settings for 2U Battery Cabinet Strings

String	Cabinet	DIP Switch Position					
		Group				Num	
		1	2	3	4	5	6
1	A	Off	Off	Off	Off	Off	On
	B	Off	Off	Off	Off	On	Off
2	A	Off	Off	Off	Off	On	On
	B	Off	Off	Off	On	Off	Off
3	A	Off	Off	Off	On	Off	On
	B	Off	Off	Off	On	On	Off
4	A	Off	Off	Off	On	On	On
	B	Off	Off	On	Off	Off	Off
5	A	Off	Off	On	Off	Off	On
	B	Off	Off	On	Off	On	Off

Figure 3.10 DIP Switch on Rear Panel of 2U Battery Cabinet



Item	Description
1	Group
2	Number

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4 Specifications

Table 4.1 Vertiv™ Liebert® ITA2 Battery Cabinet Specifications

Model:	ITA2-BCI0020K03	ITA2-BCI0020K02
Battery Type	Sealed, lead-acid, maintenance-free	
Battery Capacity	12V/9Ah	
Battery Cells Per Cabinet.	16	
Rated Voltage per Cabinet	192 VDC	
Dimensions, W × D × H, in. (mm)		
Net (One Cabinet)	16.9 x 19.7 x 5.1 (430 × 500 × 130)	16.9 x 29.6 x 3.3 (430 x 751 x 85)
Shipping (2 Cabinets per Carton)	32.4 x 32.4 x 29.5 (823 x 823 x 750)	32.4 x 32.4 x 25.9 (823 x 823 x 658)
Weight, Approximate, lb. (kg)		
Net (One Cabinet)	115 (52.2)	
Shipping (2 Cabinets per Carton)	306.4 (139)	

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